

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 38-40 have been cancelled.

This amendment adds, changes and/or deletes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

After amending the claims as set forth above, claims 1-3 and 5-37 are now pending in this application. Claims 7, 8, 12-14, 17, 18, and 21-37 have been withdrawn from consideration.

Priority

Applicant notes that not all boxes acknowledging Applicant's claim for foreign priority were checked in the Office Action Summary. Applicant respectfully requests that the Office acknowledge Applicant's claim for foreign priority by checking all boxes in the next Office correspondence, including the third box noting that all copies of the certified copies of the priority documents have been received in this National Stage application.

Rejection under 35 U.S.C. § 103

Claims 1-6, 9-11, 15, 16, 19, 20, and 38-40 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Pub. No. 2003/0067219 to Seto *et al.* (hereafter "Seto") in view of U.S. Patent No. 6,021,375 to Urai *et al.* (hereafter "Urai"). This rejection is respectfully traversed.

Seto discloses an automatic brake system that includes a scanning type laser-radar that periodically scans a laser ray over an angle range to determine a vehicle interval distance. See Seto at paragraphs 0019-0021. Seto discloses that based on information from the laser-radar, distances between the right rear edge of the preceding vehicle and the laser-radar, and

between the left rear edge of the preceding vehicle and the laser-radar are determined, along with angles of the right and left rear edges of the preceding vehicle relative to the laser-radar. See Seto at paragraph 0024. A needed lateral move distance is calculated on the basis of this detected data. See Seto at paragraph 0024-0032.

However, Seto does not disclose or suggest a system for assisting a driver operating a vehicle traveling on a road comprising, among other things, a control arrangement configured to regulate a reaction force input to a driver based on a determined risk and configured to vary the reaction force input as a width of a target obstacle varies, as recited in claim 1. Claims 15 and 19 include similar language. Instead, as indicated on page 3 of the Office Action, Seto is silent in regard to regulating a reaction force input to a driver based on a determined risk and a width of a target obstacle, as recited in claims 1, 15, and 19.

The Office argues on page 3 of the Office Action in regard to claim 1 that Seto provides a control arrangement configured to regulate at least one of a reaction force input to a driver and a force applied to a vehicle. Applicant notes that claim 1 does not recite this but instead recites regulating a reaction force input to a driver.

The Office argues on page 4 of the Office Action in regard to former claims 38-40 that Seto discloses a path of a vehicle as an estimated path, citing Figures 3 and 4 and paragraph 0030 of Seto. However, although Seto discloses determining a distance for a needed lateral move to avoid a collision, Seto does not disclose or suggest regulating a reaction force input to a driver based on a determined risk and varying that reaction force input as a width of a target obstacle varies, as recited in claims 1, 15, and 19. The device of Seto simply does not provide a reaction force input to a driver and vary that reaction force input as a width of a target obstacle varies, as recited in claims 1, 15, and 19.

As discussed in Applicant's specification at page 11, line 11, to page 13, line 2, a risk, such as a headway time THW, can be determined and compared to a predetermined threshold value. When the determined risk (such as the headway time THW) is less than the predetermined threshold value a repulsive force that depends upon an overlap-ratio gain can be determined. Conversely, when the determined risk is not less than the predetermined

threshold value the repulsive force can be set to zero. This repulsive force can be used to determine a value of a reaction force input to a driver, such as via a haptic input (for example, an accelerator pedal or a brake pedal). Because the repulsive force can be a function of a width dependent overlap-ratio gain, the repulsive force can vary with different values of a width of an in-path target obstacle for a given lateral deviation between a host vehicle and that of the in-path target obstacle.

Urai discloses a vehicle safety running control system that detects an obstacle and determines a relative distance X to the obstacle from the subject vehicle and a horizontal position Y of the obstacle transverse to the x -direction. See Urai at col. 4, lines 26-34. The device of Urai determines a threshold L_s as a minimum distance needed to avoid the obstacle via steering, determines an overlapping amount or amount of lateral movement necessary for the subject vehicle to avoid the obstacle by steering, and calculates times necessary for avoiding the obstacle by steering. See Urai at col. 4, line 39, to col. 5, line 30. A threshold value L_b for avoiding contact with the obstacle by automatic braking is also calculated. See Urai at col. 5, lines 31-35.

The device of Urai then compares the relative distance X between the obstacle and the calculated threshold L_s to determine if the obstacle can be successfully avoided by steering. See Urai at col. 6, lines 19-26, and step S14 of Figure 2. If the relative distance X is greater than or equal to the threshold L_s , automatic braking is not used and the vehicle operator is expected to steer the vehicle to avoid the obstacle. See Urai at col. 6, lines 27-31. If the relative distance X is less than the threshold L_s , the device of Urai compares the relative distance X to the threshold L_b to determine what level of automatic braking is necessary. See Urai at col. 6, lines 36-55, and steps S18, S20, S22 of Figure 2.

In other words, the device of Urai compares the relative distance X or travel distance between an obstacle and a host vehicle to calculated thresholds to determine if the operator can steer the host vehicle clear of the obstacle or if automatic braking is necessary. The device of Urai does not regulate a reaction force input to a driver based on a determined risk, as recited in claims 1, 15, and 19. Urai is silent in regard to regulating a reaction force input

to a driver and instead determines whether steering by a driver would be sufficient to avoid an obstacle or that automatic braking would be necessary.

In addition, the device of Urai is not configured to vary a reaction force input as a width of a target obstacle varies, as recited in claims 1, 15, and 19. Urai is silent in regard to such a reaction force input to a driver and also does not disclose or suggest that such a reaction force input varies as a width of a target obstacle varies.

As a result, Urai does not remedy the deficiencies of Seto and the combination of Seto and Urai does not disclose or suggest all of the features of claims 1, 15, and 19.

Claim 5

Claim 5 depends from claim 1 and is allowable over Seto and Urai for at least the reasons discussed above. Claim 5 further recites “wherein the smaller the width of the target obstacle, the smaller the correction of the control amount.” As discussed above, Seto and Urai do not disclose or suggest regulating a reaction force input to the driver, as recited in claims 1, 15, and 19. Nor do Seto and Urai disclose or suggest reducing a correction of a control amount used to regulate the reaction force input to the driver, as recited in claim 5.

For at least the reasons discussed above, the combination of Seto and Urai does not disclose or suggest all of the features of claim 5. Reconsideration and withdrawal of this rejection is respectfully requested.

Lack of Unity

Applicant maintains the traversal of the lack of unity requirement and notes that the Office has not identified where the special technical feature is specifically found in the prior art references identified by the Office. In addition, Applicant notes that corresponding applications have been granted patents in Europe and Japan.

Conclusion

Applicant submits that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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